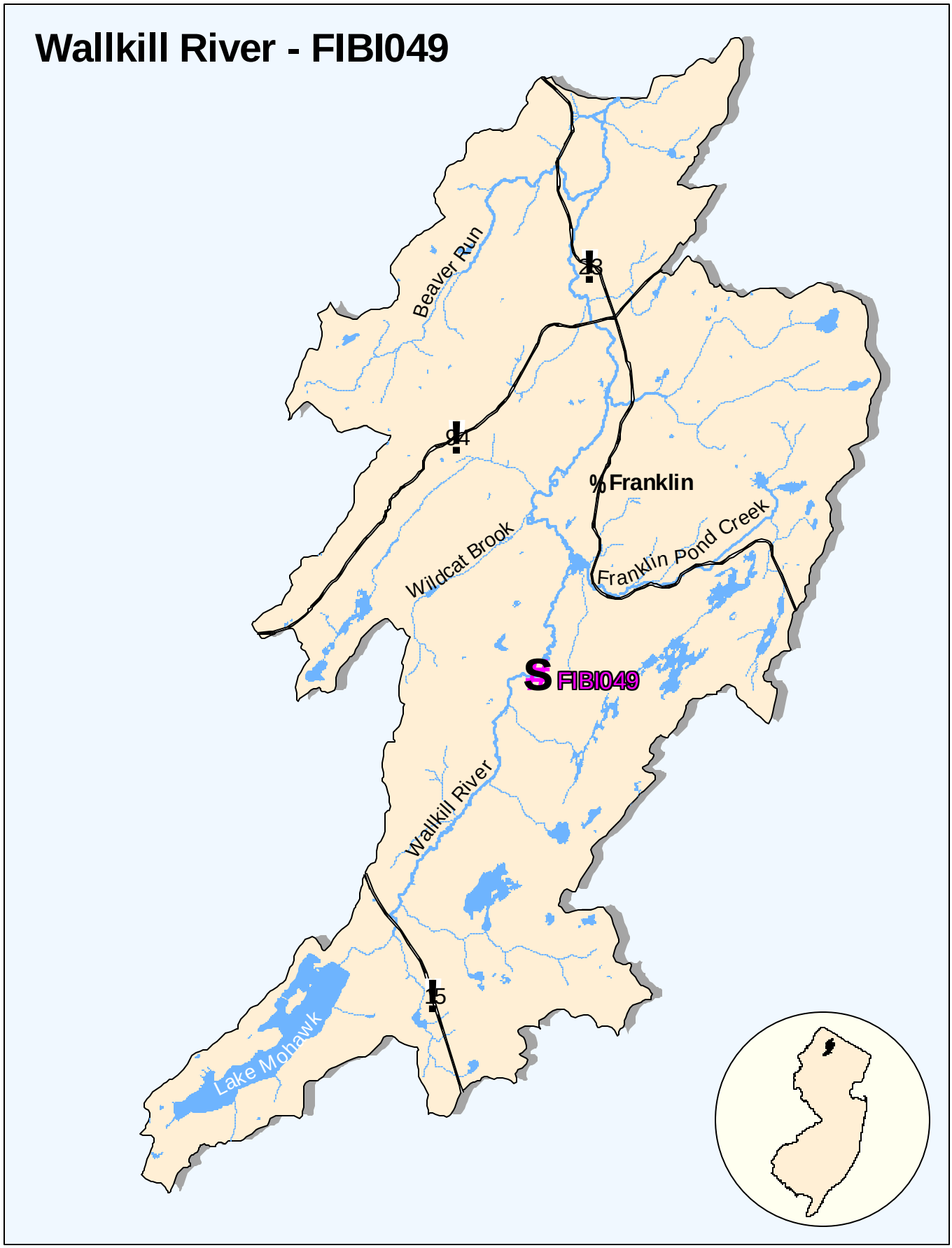
Wallkill River - FIBI049



S FIBI Sampling Location
Small Streams (1st and 2nd Order)
Large Streams (3rd Order and Above)


FIBI049
WALKILL RIVER
Kennedy Avenue
Ogdensburg Boro, Sussex County
79
Kennedy Ave.
Sgt. M. Yurchak Rd.
Cork Hill Rd.
Fox Hill Dr.
Beardslee Hill Dr.
N. Clark St.
Main St.
Passaic Ave.
0
0.1 Miles
N
LEGEND
Start
Finish
Segment Sampled
Direction of Flow

SUMMARY OF RESULTS

FIBI049 - Walkill River

1. Stream Name:	Walkill River
2. Sampling Date:	07-01-2002
3. Sampling Location:	Kennedy Ave (41 05 12.93; -74 35 41.54)
4. Municipality:	Ogdensburg Boro
5. County:	Sussex
6. Watershed Management Area:	2
7. Contributing Drainage Area:	19.7 Square Miles
8. Electrofishing Gear:	2 Backpack
9. FIBI Score and Rating:	40 - Good
10. Habitat Score and Rating:	150 - Suboptimal
11. Fishable Species Present:	Yes
12. Relevant AMNET[1] Station Data	
Proximity of FIBI station to AMNET station:	AN0298
AMNET Rating:	Round 1 - NONE Round 2 - MODERATE
13. Stream Chemistries	
Dissolved Oxygen:	7.6 mg/L
Temperature:	22.5 ^{0}C
pH:	6.4
Conductivity:	695 µmhos/cm
14. Number of Fish with Anomalies:	0
15. Length of Stream Segment Sampled:	150 Meters
16. Water Clarity:	Slightly Turbid
17. Average Open Forest Canopy:	13%
18. Discharge:	32.21 ft.^{3}/sec
19. Substrate:	25% Gravel and Sand, 70% Cobble, 5% Boulder, 0% Clay, 0% Silt
20. Habitat:	15% Riffle, 25% Run, 60% Pool
21. Snags:	Yes
22. Periphyton:	Moderate
23. Submerged Aquatic Vegetation:	No
24. Other Observations:	
25. Number of Fish Species Identified:	11
26. Total Number of Fish Collected:	129

[1] AMNET is the acronym for the DEP's ambient benthic macroinvertebrate monitoring network – a series of 820 monitoring stations located throughout the state's waterways that collects data on the health of bottom dwelling stream fauna which in turn is used to assess general water quality.

FIBI049 07-01-2002

Walkill River

LISTED IN ORDER OF ABUNDANCE FOUND

COMMON NAME	SCIENTIFIC NAME	# FOUND	SIZE RANGE (INCHES)
White Sucker*	*Catostomus commersoni*	37	
Tesselated Darter	*Etheostoma olmstedi*	28	
Longnose Dace	*Rhinichthys cataractae*	26	
Redbreast Sunfish*	*Lepomis auritus*	12	1.2-5.1
Cutlips Minnow	*Exoglossum maxillingua*	11	
Creek Chub	*Semotilus atromaculatus*	7	
Blacknose Dace	*Rhinichthys atratulus*	4	
Bluegill*	*Lepomis macrochirus*	1	2.0
Brook Trout*	*Salvelinus fontinalis*	1	10.2
Brown Trout*	*Salmo trutta*	1	2.2
Creek Chubsucker	*Erimyzon oblongus*	1	

* Regulated as a fishable species under current New Jersey Fish and Wildlife codes

Species Identified at Walkill River (FIBI049)
(Not to Scale)

John Scarola

Tesselated Darter

John Scarola

Redbreast Sunfish

Shute

Longnose Dace

Konrad Schmidt

Creek Chub

John Scarola

White Sucker

John Scarola

Blacknose Dace

Species Identified at Walkill River (FIBI049)
(Not to Scale)

John Scarola

Bluegill

Don Beimborn

Brook Trout

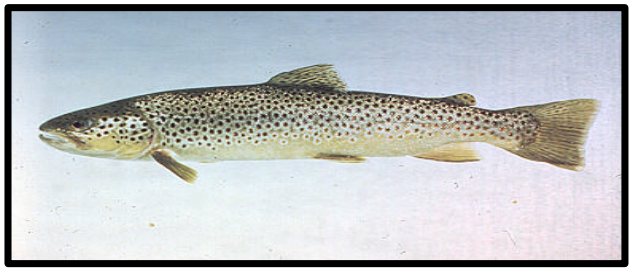
Jenkins & Burkhead

Cutlips Minnow

William Roston

Creek Chubsucker

John Scarola



Brown Trout

FIBI049 - Walkill River @ Kennedy Avenue Excellent **Good** Fair Poor

Date Sampled - 7/01/2002

	Score
# of Fish Species	5
# of Benthic Insectivorous Species (BI)	5
# of Trout and Centrarchid Species (trout, bass, sunfish, crappie)	5
# of Intolerant Species (IS)	5
Proportion of Individuals as White Suckers	3
Proportion of Individuals as Generalists (carp, creek chub, banded killifish, goldfish, fathead minnow, green sunfish)	5
Proportion of Individuals as Insectivorous **Cyprinids** (I and BI)	3
Proportion of Individuals as Trout *whichever gives better score OR Proportion of Individuals as Pisciviores (Excluding American Eel)*	1
Number of Individuals in Sample	3
Proportion of Individuals w/disease/anomalies (excluding blackspot)	5
Total	**40**

Stream Rating

45-50	**Excellent**
37-44	**Good**
29-36	**Fair**
10-28	**Poor**

HABITAT ASSESSMENT FOR *HIGH* GRADIENT STREAMS — Walkill River (FIBI049) – 7/1/02

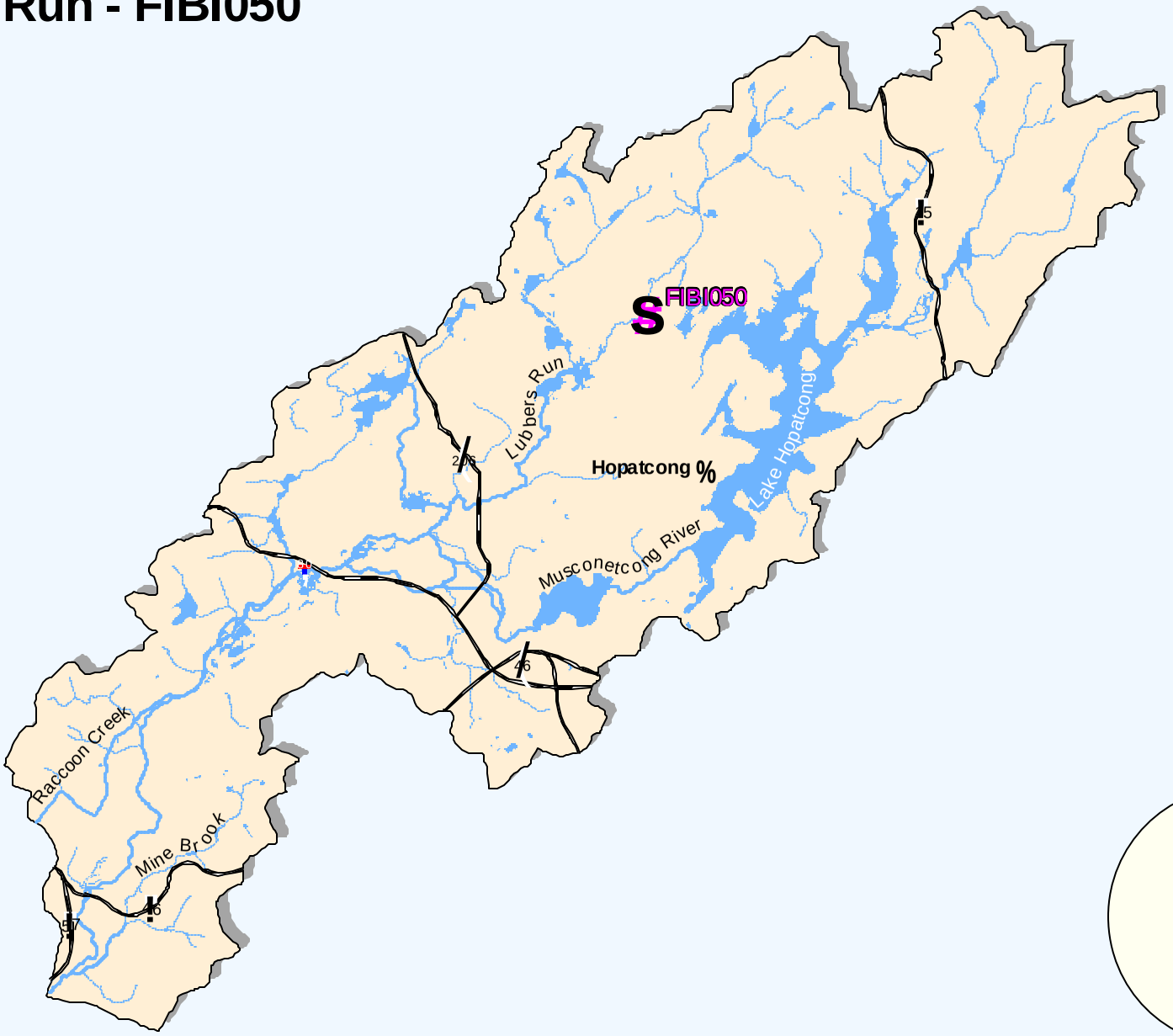
	Condition Category			
	Optimal	**Suboptimal**	**Marginal**	**Poor**
1. Epifaunal Substrate /Available Cover	Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are <u>not</u> new fall and <u>not</u> transient).	40-70% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.
SCORE 18	20 19 **18** 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
2. Embeddedness	Gravel, cobble, and boulder particles are 0-25% surrounded by fine sediment. Layering of cobble provides diversity of niche space	Gravel, cobble, and boulder particles are 25-50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50-75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are more than 75% surrounded by fine sediment.
SCORE 16	20 19 18 17 **16**	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
3. Velocity/Depth Regimes	All 4 velocity/depth regimes present (slow-deep, slow-shallow, fast-deep, fast-shallow). (slow is <0.3 m/s, deep is >0.5 m)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast-shallow or slow-shallow are missing, score low).	Dominated by 1 velocity / depth regime (usually slow-deep).
SCORE 19	20 **19** 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
4. Sediment Deposition	Little or no enlargement of islands or point bars and less than 5% (<20% for low-gradient streams) of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% (20-50% for low-gradient) of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% (50-80% for low-gradient) of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 50% (80% for low-gradient) of the bottom changing frequently; pools almost absent due to substantial sediment deposition.
SCORE 11	20 **19** 18 17 16	15 14 13 **12** **11**	10 9 8 7 6	5 4 3 2 1 0
5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
SCORE 18	20 19 **18** 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. In stream habitat greatly altered or removed entirely.
SCORE 19	20 **19** 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water or shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.
SCORE 13	20 19 18 17 16	15 14 **13** 12 11	10 9 8 7 6	5 4 3 2 1 0
8. Bank Stability (score each bank) Note: determine left or right side by facing downstream.	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank in reach has areas of erosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.
SCORE ___**6**___ (LB)	Left 10 9	8 7 **6**	5 4 3	2 1 0
SCORE ___**7**___ (RB)	Right 10 9	8 **7** 6	5 4 3	2 1 0
9. Bank Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, under story shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.
SCORE ___**6**___ (LB)	Left 10 9	8 7 **6**	5 4 3	2 1 0
SCORE ___**7**___ (RB)	Right 10 9	8 **7** 6	5 4 3	2 1 0
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters: little or no riparian vegetation due to human activities.
SCORE ___**9**___ (LB)	Left 10 **9**	8 7 6	5 4 3	2 1 0
SCORE ___**1**___ (RB)	Right 10 9	8 7 6	5 4 3	2 **1** 0

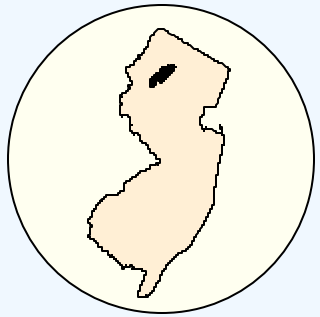
HABITAT SCORE

150

HABITAT SCORES	VALUE
OPTIMAL	160 – 200
SUB-OPTIMAL	**110 – 159**
MARGINAL	60 – 109
POOR	< 60

Lubbers Run - FIBI050





FIBI Sampling Location
Small Streams (1st and 2nd Order)
Large Streams (3rd Order and Above)

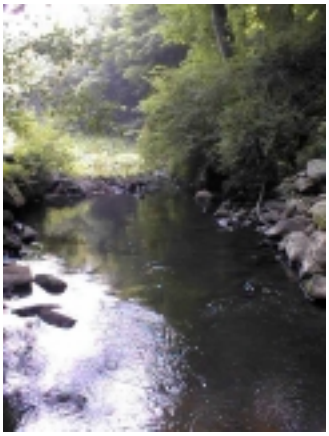
N

0 1 2 3 4 Miles


FIBI050
LUBBERS RUN
Lackawanna Drive (CR 607)
Byram Township, Sussex County
87
Lackawanna Dr.
Old Stanhope Rd.
Maxim Dr.
Stanhope Sparta Rd.
0
0.1 Miles
N
LEGEND
Start
Finish
Segment Sampled
Direction of Flow

SUMMARY OF RESULTS

FIBI050 - Lubbers Run



1. Stream Name:	Lubbers Run
2. Sampling Date:	07-02-2002
3. Sampling Location:	Lackawanna Dr., CR 607 (40 57 51.27; -74 40 28.21)
4. Municipality:	Byram Twp.
5. County:	Sussex
6. Watershed Management Area:	1
7. Contributing Drainage Area:	6.8 Square Miles
8. Electrofishing Gear:	2 Backpack
9. FIBI Score and Rating:	44 - Good
10. Habitat Score and Rating:	147 - Suboptimal
11. Fishable Species Present:	Yes
12. Relevant AMNET[1] Station Data	
Proximity of FIBI station to AMNET station:	AN0065
AMNET Rating:	Round 1 – NONE; Round 2 – NONE
13. Stream Chemistries	
Dissolved Oxygen:	7.66 mg/L
Temperature:	25.4 ^{0}C
pH:	7.51
Conductivity:	365 µmhos/cm
14. Number of Fish with Anomalies:	1
15. Length of Stream Segment Sampled:	150 Meters
16. Water Clarity:	Clear
17. Average Open Forest Canopy:	54%
18. Discharge:	22.5 ft.^{3}/sec
19. Substrate:	30% Gravel and Sand, 25% Cobble, 25% Boulder, 10% Clay, 10% Silt
20. Habitat:	30% Riffle, 50% Run, 20% Pool
21. Snags:	Yes
22. Periphyton:	Moderate
23. Submerged Aquatic Vegetation:	Yes
24. Other Observations:	
25. Number of Fish Species Identified:	14
26. Total Number of Fish Collected:	212

[1] AMNET is the acronym for the DEP's ambient benthic macroinvertebrate monitoring network – a series of 820 monitoring stations located throughout the state's waterways that collects data on the health of bottom dwelling stream fauna which in turn is used to assess general water quality.

FIBI050 07-02-2002

Lubbers Run

LISTED IN ORDER OF ABUNDANCE FOUND

COMMON NAME	SCIENTIFIC NAME	# FOUND	SIZE RANGE (INCHES)
Creek Chubsucker	*Erimyzon oblongus*	47	
Tesselated Darter	*Etheostoma olmstedi*	34	
Blacknose Dace	*Rhinichthys atratulus*	33	
Bluegill*	*Lepomis macrochirus*	26	3.1
Redbreast Sunfish*	*Lepomis auritus*	23	1.6-6.7
White Sucker*	*Catostomus commersoni*	17	
Redfin Pickerel*	*Esox americanus americanus*	12	2.8-8.3
Bluespotted Sunfish	*Enneacanthus gloriosus*	8	
Pumpkinseed*	*Lepomis gibbosus*	4	2.0-2.8
Yellow Bullhead*	*Ameiurus natalis*	3	5.9-6.3
Margined Madtom	*Noturus insignis*	2	
Black Crappie*	*Pomoxis nigromaculatus*	1	3.9
Creek Chub	*Semotilus atromaculatus*	1	
Rainbow Trout*	*Oncorhynchus mykiss*	1	9.8

* Regulated as a fishable species under current New Jersey Fish and Wildlife codes

Species Identified at Lubbers Run (FIBI050)

(Not to Scale)

John Scarola

Tesselated Darter

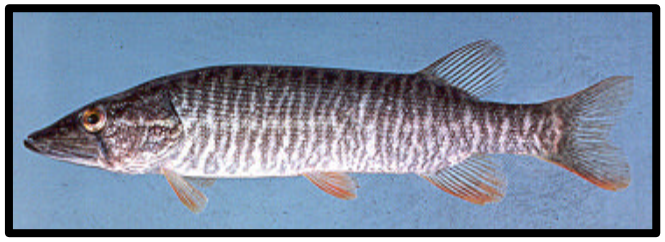
John Scarola

Redbreast Sunfish

John Scarola

Pumpkinseed

Jenkins & Burkhead



Redfin Pickerel

John Scarola

White Sucker

John Scarola

Blacknose Dace

Species Identified at Lubbers Run (FIBI050)

(Not to Scale)

John Scarola

Bluegill

John Scarola

Yellow Bullhead

William Roston

Creek Chubsucker

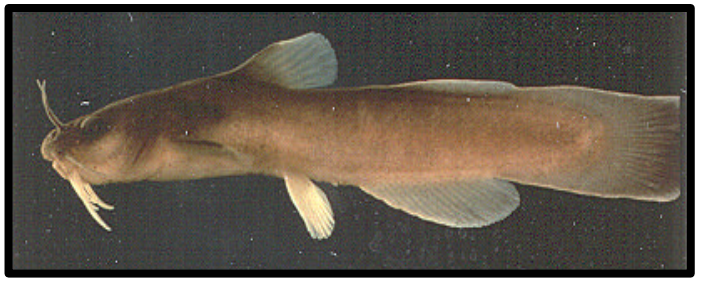
Konrad Schmidt

Creek Chub

John Scarola

Rainbow Trout

Shute



Margined Madtom

Species Identified at Lubbers Run (FIBI050)

(Not to Scale)

William Pflieger

Black Crappie

Jenkins & Burkhead

Bluespotted Sunfish

FIBI050 - Lubbers Run @ Lackawanna Drive Excellent **Good** Fair Poor

Date Sampled - 7/02/2002

	Score
# of Fish Species	5
# of Benthic Insectivorous Species (BI)	5
# of Trout and Centrarchid Species (trout, bass, sunfish, crappie)	5
# of Intolerant Species (IS)	5
Proportion of Individuals as White Suckers	5
Proportion of Individuals as Generalists (carp, creek chub, banded killifish, goldfish, fathead minnow, green sunfish)	5
Proportion of Individuals as Insectivorous **Cyprinids** (I and BI)	1
Proportion of Individuals as Trout *whichever gives better score OR Proportion of Individuals as Pisciviores (Excluding American Eel)*	5
Number of Individuals in Sample	3
Proportion of Individuals w/disease/anomalies (excluding blackspot)	5
Total	**44**

Stream Rating

45-50	**Excellent**
37-44	**Good**
29-36	**Fair**
10-28	**Poor**

HABITAT ASSESSMENT FOR *HIGH* GRADIENT STREAMS — Lubbers Run (FIBI050) – 7/2/02

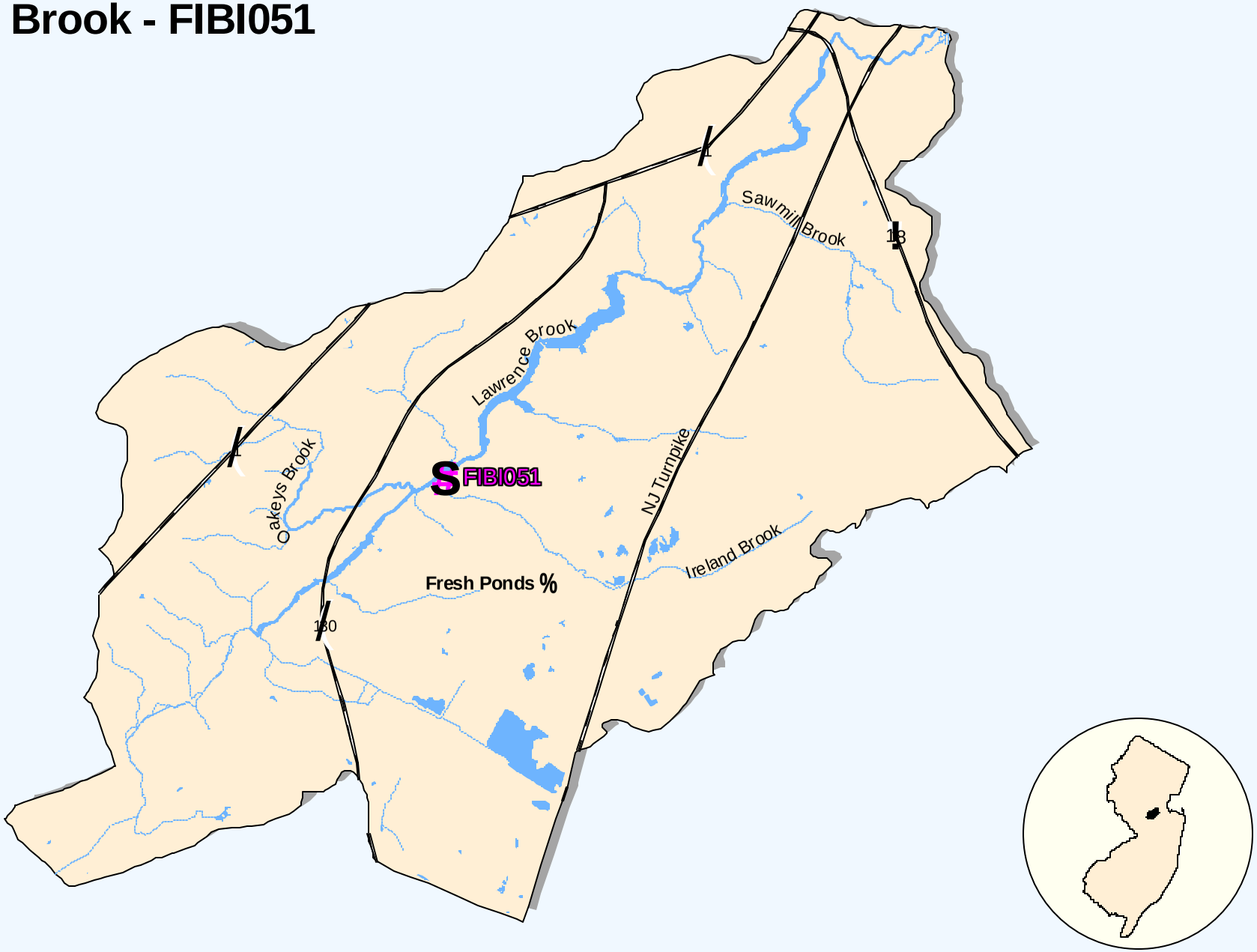
	Condition Category			
	Optimal	**Suboptimal**	**Marginal**	**Poor**
1. Epifaunal Substrate /Available Cover	Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are <u>not</u> new fall and <u>not</u> transient).	40-70% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.
SCORE 10	20 19 18 17 16	15 14 13 12 11	**10** 9 8 7 6	5 4 3 2 1 0
2. Embeddedness	Gravel, cobble, and boulder particles are 0-25% surrounded by fine sediment. Layering of cobble provides diversity of niche space	Gravel, cobble, and boulder particles are 25-50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50-75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are more than 75% surrounded by fine sediment.
SCORE 13	20 19 18 17 16	15 14 **13** 12 11	10 9 8 7 6	5 4 3 2 1 0
3. Velocity/Depth Regimes	All 4 velocity/depth regimes present (slow-deep, slow-shallow, fast-deep, fast-shallow). (slow is <0.3 m/s, deep is >0.5 m)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast-shallow or slow-shallow are missing, score low).	Dominated by 1 velocity / depth regime (usually slow-deep).
SCORE 16	20 19 18 17 **16**	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
4. Sediment Deposition	Little or no enlargement of islands or point bars and less than 5% (<20% for low-gradient streams) of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% (20-50% for low-gradient) of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% (50-80% for low-gradient) of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 50% (80% for low-gradient) of the bottom changing frequently; pools almost absent due to substantial sediment deposition.
SCORE 10	20 **19** 18 17 16	15 14 13 **12** 11	**10** 9 8 7 6	5 4 3 2 1 0
5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
SCORE 16	20 19 18 17 **16**	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. In stream habitat greatly altered or removed entirely.
SCORE 15	20 19 18 17 16	**15** 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water or shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.
SCORE 16	20 19 18 17 **16**	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
8. Bank Stability (score each bank) Note: determine left or right side by facing downstream.	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank in reach has areas of erosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.
SCORE ___**8**___ (LB)	Left 10 9	**8** 7 6	5 4 3	2 1 0
SCORE ___**8**___ (RB)	Right 10 9	**8** 7 6	5 4 3	2 1 0
9. Bank Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, under story shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.
SCORE ___**9**___ (LB)	Left 10 **9**	8 7 6	5 4 3	2 1 0
SCORE ___**9**___ (RB)	Right 10 **9**	8 7 6	5 4 3	2 1 0
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters: little or no riparian vegetation due to human activities.
SCORE ___**8**___ (LB)	Left 10 9	**8** 7 6	5 4 3	2 1 0
SCORE ___**9**___ (RB)	Right 10 **9**	8 7 6	5 4 3	2 1 0

HABITAT SCORE

147

HABITAT SCORES	VALUE
OPTIMAL	160 – 200
SUB-OPTIMAL	**110 – 159**
MARGINAL	60 – 109
POOR	< 60

Ireland Brook - FIBI051



S FIBI Sampling Location
Small Streams (1st and 2nd Order)
Large Streams (3rd Order and Above)

N

0 1 2 3 Miles


FIBI051
IRELAND BROOK
Riva Avenue
E. Brunswick Township, Middlesex County
96
Riva Ave.
Ireland Brook Dr
R
0
0.1 Miles
N
LEGEND
Start
Finish
Segment Sampled
Direction of Flow

SUMMARY OF RESULTS

FIBI051 - Ireland Brook

1. Stream Name:	Ireland Brook
2. Sampling Date:	07-19-2002
3. Sampling Location:	Riva Ave (40 25 13.41; -74 29 05.49)
4. Municipality:	East Brunswick Twp.
5. County:	Middlesex
6. Watershed Management Area:	9
7. Contributing Drainage Area:	6.4 Square Miles
8. Electrofishing Gear:	2 Backpack
9. FIBI Score and Rating:	36 - Fair
10. Habitat Score and Rating:	146 - Suboptimal
11. Fishable Species Present:	Yes
12. Relevant AMNET[1] Station Data	
Proximity of FIBI station to AMNET station:	AN0433
AMNET Rating:	Round 1 – MODERATE; Round 2 – MODERATE
13. Stream Chemistries	
Dissolved Oxygen:	8.2 mg/L
Temperature:	16.9 ^{0}C
pH:	6.5
Conductivity:	159 µmhos/cm
14. Number of Fish with Anomalies:	2
15. Length of Stream Segment Sampled:	150 Meters
16. Water Clarity:	Clear
17. Average Open Forest Canopy:	15.86%
18. Discharge:	2.57 ft.^{3}/sec
19. Substrate:	50% Gravel and Sand, 30% Cobble, 10% Boulder, 0% Clay, 10% Silt
20. Habitat:	30% Riffle, 40% Run, 30% Pool
21. Snags:	Yes
22. Periphyton:	Heavy
23. Submerged Aquatic Vegetation:	Yes
24. Other Observations:	A lot of channel exposed, not many fish for amount of habitat
25. Number of Fish Species Identified:	10
26. Total Number of Fish Collected:	112

[1] AMNET is the acronym for the DEP's ambient benthic macroinvertebrate monitoring network – a series of 820 monitoring stations located throughout the state's waterways that collects data on the health of bottom dwelling stream fauna which in turn is used to assess general water quality.

FIBI051 07-19-2002

Ireland Brook

LISTED IN ORDER OF ABUNDANCE FOUND

COMMON NAME	SCIENTIFIC NAME	# FOUND	SIZE RANGE (INCHES)
White Sucker*	*Catostomus commersoni*	34	
Tesselated Darter	*Etheostoma olmstedi*	33	
Pumpkinseed*	*Lepomis gibbosus*	13	2.4-4.7
Chain Pickerel*	*Esox niger*	9	2.2-9.3
American Eel*	*Anguilla rostrata*	6	
Brown Bullhead*	*Ameiurus nebulosus*	6	1.6-5.5
Bluegill*	*Lepomis macrochirus*	5	2.8-4.1
Eastern Mudminnow	*Umbra pygmaea*	4	
Largemouth Bass*	*Micropterus salmoides*	1	1.4
Yellow Perch*	*Perca flavescens*	1	3.9

* Regulated as a fishable species under current New Jersey Fish and Wildlife codes

Species Identified at Ireland Brook (FIBI051)

(Not to Scale)

John Scarola

Tesselated Darter

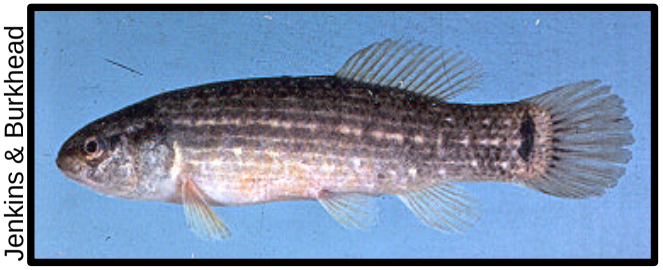
AFS

Largemouth Bass

John Scarola

Bluegill

Jenkins & Burkhead



Eastern Mudminnow

John Scarola

White Sucker

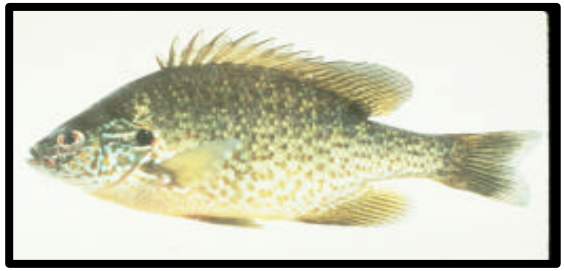
John Scarola

Yellow Perch

Species Identified at Ireland Brook (FIBI051)

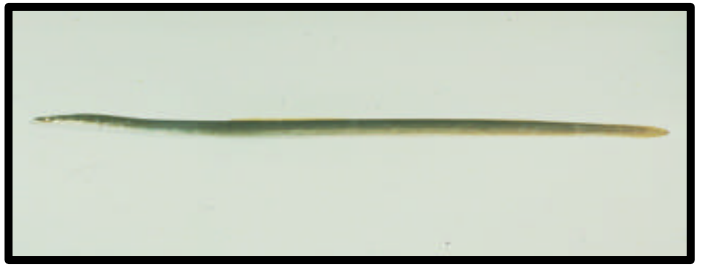
(Not to Scale)

John Scarola



Pumpkinseed

John Scarola



American Eel

John Scarola

Chain Pickerel

John Scarola

Brown Bullhead

FIBI051 - Ireland Brook @ Riva Avenue Excellent Good **Fair** Poor

Date Sampled - 7/19/2002

	Score
# of Fish Species	5
# of Benthic Insectivorous Species (BI)	5
# of Trout and Centrarchid Species (trout, bass, sunfish, crappie)	5
# of Intolerant Species (IS)	1
Proportion of Individuals as White Suckers	1
Proportion of Individuals as Generalists (carp, creek chub, banded killifish, goldfish, fathead minnow, green sunfish)	5
Proportion of Individuals as Insectivorous **Cyprinids** (I and BI)	1
Proportion of Individuals as Trout *whichever gives better score	
OR	
Proportion of Individuals as Pisciviores (Excluding American Eel)*	5
Number of Individuals in Sample	3
Proportion of Individuals w/disease/anomalies (excluding blackspot)	5
Total	**36**

Stream Rating

45-50	**Excellent**
37-44	**Good**
29-36	**Fair**
10-28	**Poor**

HABITAT ASSESSMENT FOR *HIGH* GRADIENT STREAMS — Ireland Brook (FIBI051) – 7/19/02

	Condition Category			
	Optimal	**Suboptimal**	**Marginal**	**Poor**
1. Epifaunal Substrate /Available Cover	Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are <u>not</u> new fall and <u>not</u> transient).	40-70% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.
SCORE 18	20 19 **18** 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
2. Embeddedness	Gravel, cobble, and boulder particles are 0-25% surrounded by fine sediment. Layering of cobble provides diversity of niche space	Gravel, cobble, and boulder particles are 25-50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50-75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are more than 75% surrounded by fine sediment.
SCORE 14	20 19 18 17 16	15 **14** 13 12 11	10 9 8 7 6	5 4 3 2 1 0
3. Velocity/Depth Regimes	All 4 velocity/depth regimes present (slow-deep, slow-shallow, fast-deep, fast-shallow). (slow is <0.3 m/s, deep is >0.5 m)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast-shallow or slow-shallow are missing, score low).	Dominated by 1 velocity / depth regime (usually slow-deep).
SCORE 14	20 19 18 17 16	15 **14** 13 12 11	10 9 8 7 6	5 4 3 2 1 0
4. Sediment Deposition	Little or no enlargement of islands or point bars and less than 5% (<20% for low-gradient streams) of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% (20-50% for low-gradient) of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% (50-80% for low-gradient) of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 50% (80% for low-gradient) of the bottom changing frequently; pools almost absent due to substantial sediment deposition.
SCORE 10	20 **19** 18 17 16	15 14 13 **12** 11	**10** 9 8 7 6	5 4 3 2 1 0
5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
SCORE 9	20 19 18 17 16	15 14 13 12 11	10 **9** 8 7 6	5 4 3 2 1 0
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. In stream habitat greatly altered or removed entirely.
SCORE 15	20 19 18 17 16	**15** 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water or shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.
SCORE 14	20 19 18 17 16	15 **14** 13 12 11	10 9 8 7 6	5 4 3 2 1 0
8. Bank Stability (score each bank) Note: determine left or right side by facing downstream.	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank in reach has areas of erosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.
SCORE ___**8**___ (LB)	Left 10 9	**8** 7 6	5 4 3	2 1 0
SCORE ___**7**___ (RB)	Right 10 9	8 **7** 6	5 4 3	2 1 0
9. Bank Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, under story shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.
SCORE ___**9**___ (LB)	Left 10 **9**	8 7 6	5 4 3	2 1 0
SCORE ___**9**___ (RB)	Right 10 **9**	8 7 6	5 4 3	2 1 0
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters: little or no riparian vegetation due to human activities.
SCORE ___**10**___ (LB)	Left **10** 9	8 7 6	5 4 3	2 1 0
SCORE ___**9**___ (RB)	Right 10 **9**	8 7 6	5 4 3	2 1 0

HABITAT SCORE

146

HABITAT SCORES	VALUE
OPTIMAL	160 – 200
SUB-OPTIMAL	**110 – 159**
MARGINAL	60 – 109
POOR	< 60